

In-Hand Scan Card™ and In-Hand Scan Card-Xtreme™

CompactFlash Card with Built-in Bar Code Laser Scanner for:

- *Pocket PCs and Pocket PC 2002s*
- *Handheld PC Pros, HPC 2000s and Pen Tablets
based on Windows CE*
- *Windows 9x/Me/2000 Notebooks*
- *Casio BE-300 Cassiopeia Pocket Manager*

User's Guide



socket™
The Mobile Connection

How This Manual Is Organized

This *User's Guide* contains separate chapters covering the installation and use of the In-Hand Scan Card (and In-Hand Scan Card-Xtreme) on different Windows platforms.

Chapter 1, **“Introduction,”** gives you an overview of the In-Hand Scan Card package.

Chapter 2, **“Windows CE Setup,”** tells you how to install the In-Hand Scan Card on a mobile computer based on Windows CE (v2.11 or greater).

Chapter 3, **“Casio BE-300 Setup,”** explains how to install the In-Hand Scan Card on a Casio BE-300 Cassiopeia Pocket Manager.

Chapter 3, **“Windows 9x/Me/2000 Setup,”** tells you how to install the In-Hand Scan Card on a notebook computer with Windows 95/98/Me/2000.

Appendix A, **“ISC Specifications,”** describes the technical specifications of the In-Hand Scan Card packages.

Appendix B, **“Bar Code Label Specifications,”** includes technical specifications for bar code labels regarding background substrate, ink color and type, voids and specks, definition, contrast, and tolerance.

Appendix C, **“Class 1 vs. Class 2 Lasers,”** compares and contrasts the two kinds of lasers.

Appendix D, **“Default Parameters,”** lists the symbologies and other parameters that have been set as default for the ISC.

Appendix E, **“Decode Zone,”** provides a diagram showing the In-Hand Scan Card's scanning range.

Appendix F, **“PDF417 Bar Codes,”** provides basic information about the PDF417 symbology, how to scan a PDF417 bar code with the ISC-Xtreme, and how to manage the decoded data.

Appendix G, **“Troubleshooting,”** helps you correct the most common problems you may encounter using the In-Hand Scan Card.

Appendix H, **“Technical Support,”** tells you how to contact Socket's technical support department and lists information you should prepare yourself with before seeking help.

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Chapter 1 Introduction

Overview

The Socket In-Hand Scan Card (ISC) gives you the freedom of scanning bar codes anytime anywhere with a variety of Windows-based mobile computers. Just pop in the scanner when you need it, then remove it when you're done. Plus, the card's compact design lets you scan with only one hand when used with a PDA.



The world's only bar code laser scanner built into a CompactFlash card, the ISC is sleekly designed with no cables or batteries. The ISC is available in two configurations: with a Class 1 laser for normal scanning applications or with a Class 2 laser for more demanding requirements. Please see Appendix C for a more detailed explanation of the two types of laser scanners.

The new ISC-Xtreme adds the ability to scan PDF417 2-D bar codes. Please see Appendix F for more information on PDF417 bar codes.

When combined with a Type I CompactFlash-to-PC Card adapter, the CompactFlash ISC and ISC-X also work in the PC Card slot of a Pocket PC, Handheld PC Pro, HPC 2000 or Windows 9x/Me/2000 notebook.

The In-Hand Scan Card packages include SocketScan™ software. SocketScan's "keyboard wedge" function sends scanned data to any active Windows program as if it were manually typed, so you can use the ISC with virtually any Windows program.

Other features of the In-Hand Scan Card package include:

- Automatic detection of major bar code symbologies, such as Code 39, Code 93, UPC/EAN, Code 128, Codabar, and MSI Plessey. Additional symbologies can easily be enabled.
- No clumsy cables or additional batteries.
- Mobility Friendly™ design maximizes your mobile computer's battery life.

This *User's Guide* shows how to install and use the In-Hand Scan Card and In-Hand Scan Card-Xtreme. Except where otherwise noted, "In-Hand Scan Card" also refers to the In-Hand Scan Card-Xtreme.

For software updates or help on advanced configuration, please visit:
www.socketcom.com/support/support_bar.htm

Package Contents

The In-Hand Scan Card (ISC) package includes:

- The In-Hand Scan Card
- The *SocketScan Installation CD*
- The *Socket Quick Start Guide for Bar Code Scanners*
- A product registration card



If you purchased the *In-Hand Scan Card with PC Card Adapter* package, your package also includes a Type I CompactFlash-to-PC Card adapter that lets you use the ISC in a PC Card (PCMCIA) slot of a Windows computer. This adapter can be ordered separately as Socket part number AC4000-978.



Product Diagram

Light Emitting Diode
(LED)

AMBER: Laser activity
GREEN: Good read



Chapter 2 Windows CE Setup

This chapter shows how to install, configure, and use the In-Hand Scan Card (ISC) on any Windows Powered Pocket PC (including Pocket PC 2002) or Windows CE-based Handheld PC Pro, HPC 2000 or pen tablet.



This chapter shows Pocket PC 2002 screens. Other Windows CE devices will have functionally equivalent screens except where otherwise noted.

Installation Steps Summary

- STEP 1: Register the card.
- STEP 2: Uninstall any bar code scanning software already on your device.
- STEP 3: Install the software.
- STEP 4: Insert the ISC into Your Device.
- STEP 5: Start SocketScan.
- STEP 6: Assign a trigger button.
- STEP 7: Start scanning data into a Windows program!

- OPTIONAL: Select symbologies.
- OPTIONAL: Configure prefix/suffixes.
- OPTIONAL: Run Scan Demo application to scan unknown bar codes.
- OPTIONAL: Configure sounds.
- OPTIONAL: Manually configure specific symbologies or extensions.

STEP 1: Register the Card

Register the card online at www.socketcom.com/product/prodreg.htm
You can also use the registration form included in the product package.

STEP 2: Uninstall Old Scanning Software

Delete any bar code scanning software you may already have installed on your mobile computer.

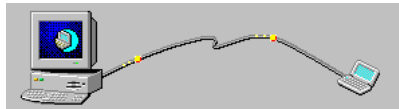
STEP 3: Install the Software

Software Installation for Internet Explorer Users



Follow these steps for software installation BEFORE inserting the ISC. Internet Explorer must be the default web browser. If Netscape is the default browser on your host PC, please turn the page for instructions.

1. Make an active partnership between the mobile computer and a host PC. Internet Explorer must be the default web browser on the host PC.



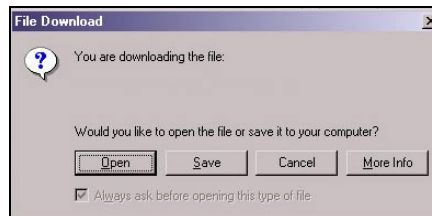
An active partnership exists if data can move between the host PC and mobile computer via a serial/USB/Ethernet connection cable or cradle.

2. Insert the *SocketScan Installation CD* into your CD-ROM drive.
3. Use **My Computer** or **Windows Explorer** to access your CD-ROM drive. In the CD, click on SETUP.HTM.



setup.htm

4. Follow the SocketScan Setup Center to install the software.
5. In the **File Download** screen, select the option that lets you open (or run) the file from its current location.



IMPORTANT!

YOU MUST OPEN THE FILE!

DO NOT SAVE!

4. A **Security Warning** screen will appear. Click **Yes**.
5. Follow the instructions that appear on your screen until setup is done.
6. Disconnect the mobile computer from the host PC. Soft reset the mobile computer.
7. Push the reset button, typically located on the back or side of the unit. Now you are ready to insert the ISC.

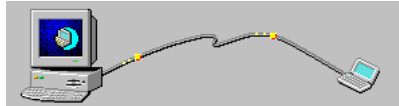
Software Installation for Netscape Users



Follow these steps for software installation BEFORE inserting the ISC.

The SETUP.HTM file DOES NOT work with Netscape. Instead, you must use the SETUP.EXE file inside the SocketScan folder for Windows CE.

1. Make an active partnership between the mobile computer and host PC.



An active partnership exists if data can move between the host PC and mobile computer via a serial/USB/Ethernet connection cable or cradle.

2. Insert the *SocketScan Installation CD* into your CD-ROM drive.



3. Use **My Computer** or **Windows Explorer** to access your CD-ROM drive and open the **SocketScanCE** folder.



SocketScanCE

4. Inside the appropriate SocketScan folder, click on **SETUP .EXE**.



5. Follow the instructions that appear on your host computer screen until setup is done.
6. Disconnect the mobile computer from the host computer.
7. Soft reset the mobile computer. Push the reset button, typically on the back of the unit. Now you are ready to insert the ISC.

STEP 4: Insert the ISC into Your Device

*Plug directly into
a CompactFlash
I/O slot.*



OR



*Insert into
an adapter,
then plug
the
combined
unit into a
PC Card
slot.*

STEP 5: Start SocketScan

1. Pocket PCs: Go to **Start | Programs | SocketScan**.
HPCs: Tap on the SocketScan icon on your desktop.
2. Whenever SocketScan is running, either of two icons may appear in the task tray (visible from the *Today* screen for Pocket PCs).



SocketScan



In-Hand Scan Card detected



No scanning card detected



3. Make sure the “In-Hand Scan Card detected” icon appears.

If the “no card detected” icon appears instead, you may have an improperly inserted card. Remove and reinsert the card, pushing it in all the way.

STEP 6: Assign a Trigger Button

Follow the appropriate directions for your device and refer to your device’s user documentation to assign a trigger button for the In-Hand Scan Card (ISC).

Note: If SocketScan is not running yet, then pressing the assigned trigger button is a quick way to launch SocketScan. Pressing the trigger button will fire the laser only when SocketScan is open.

Pocket PC

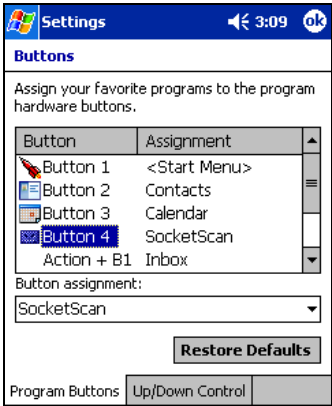
These instructions are for a Pocket PC or Pocket PC 2002.



1. Go to **Start | Settings | Personal | Buttons**.



2. From the **Button** list, select a button to trigger the In-Hand Scan Card. In the **Button assignment** field, select **SocketScan**. When done, tap **ok**.



Handheld PC Pro, HPC 2000 or Pen Tablet

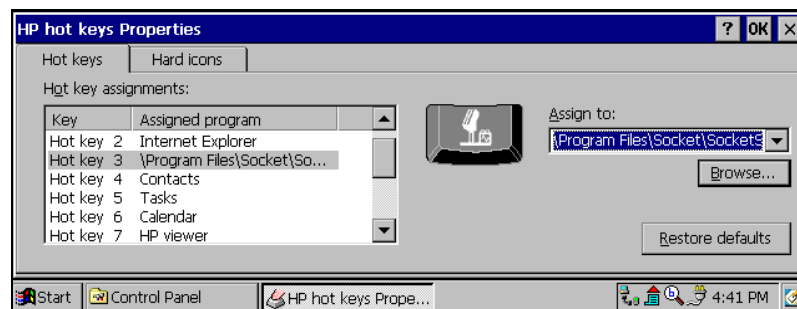
These instructions were based on a HP Jornada 720 Handheld PC 2000. The procedure for assigning a trigger key can vary from device to device. Consult your device's user documentation if necessary.



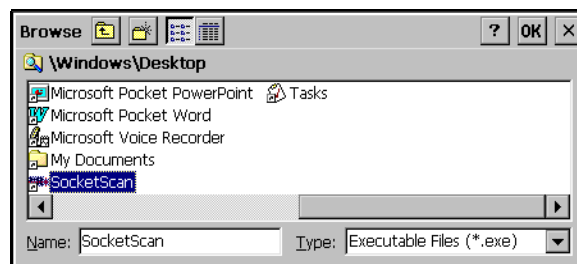
1. Tap **Start | Settings | Control Panel | HP hot keys**:



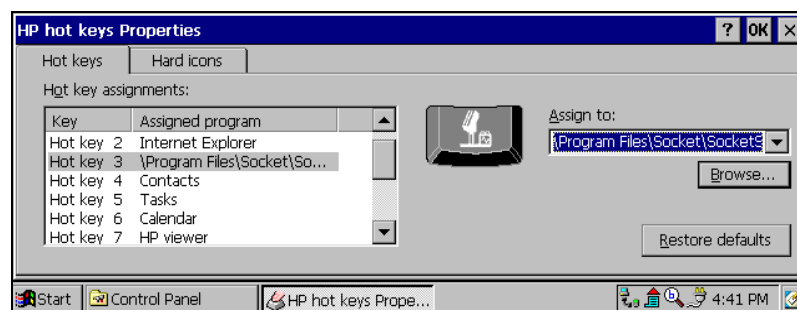
2. The **HP hot keys Properties** screen will appear.



3. Under the **Assign to:** field, tap on the **Browse** button to select SocketScan. Tap **OK**.



4. After SocketScan appears in the **Assign to:** field, tap **OK**.



STEP 7: Scan Data into a Windows Program

For information about bar code scanning applications, please email info@socketcom.com

- 1. If not already open, start SocketScan. You can press the trigger button to quickly launch the program.
- 2. Start the Windows application you want to receive the data (e.g., Excel, Notepad, etc.). Make sure a new document or spreadsheet is open.
- 3. Press the assigned trigger button and scan the code.
An amber LED indicates the laser is on.

For example, try this Code 39 bar code:

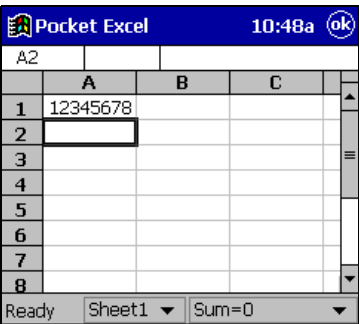


Important! Do not look directly into the beam or point it at a person!

When data is read, a beep should sound, the laser should turn off, and the LED should turn green, indicating a good read. If the ISC fails to read data within a few seconds, the amber LED and laser beam will turn off, and you must try again.


Note: If your mobile computer enters sleep mode when SocketScan is running, press the ON button to restart SocketScan.

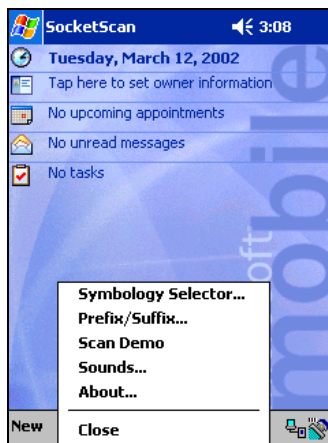
- 4. After a successful scan, data should appear in your document. For example, after you scan the code above into a Pocket Excel spreadsheet, data should appear in the first cell:



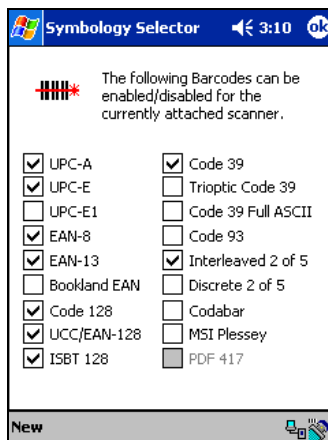
Optional: Select Symbolologies

The applet makes it quick and convenient to modify which symbolologies you want SocketScan to recognize. This feature is only available for the In-Hand Scan Card (ISC) and In-Hand Scan Card-Xtreme (ISC-X) when used with Windows CE. By default, SocketScan is set to recognize nine of the most common symbolologies.

1. Tap on the ISC icon in the task tray  to launch the applet (visible in the *Today* screen for Pocket PCs).
2. In the pop-up menu, select **Symbology Selector...**



3. In the screen that appears, check the symbolologies you wish to enable. Uncheck those you wish to disable. Tap **ok**.




Note:

1. You may select PDF 417 only if using the ISC-Xtreme.

2. Enabling all possible symbolologies will make the decode process slightly longer.

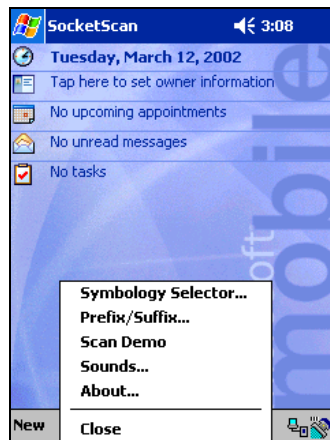
Optional: Configure Prefix/Suffixes

The SocketScan applet lets you specify prefix and/or suffix characters to be added automatically to the data you scan. This helps to further eliminate manual data entry.

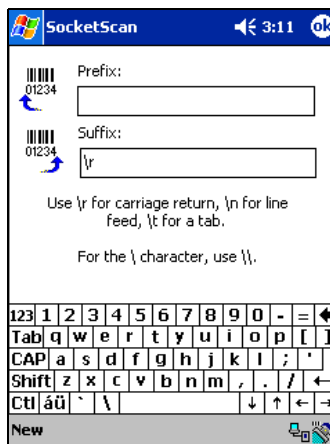
1. Tap on the ISC icon in the task tray  to launch the applet (visible in the *Today* screen for Pocket PCs).

Note: You can configure prefix/suffixes if the “no scanning card detected” icon appears.

2. In the pop-up menu, select **Prefix/Suffix...**




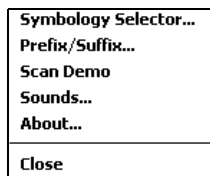
3. In the screen that appears, enter the characters you want to be appended to each scan (128 character maximum). Tap **ok**.



Optional: Run Scan Demo

Scan Demo makes it easy to determine the symbology, number of characters, and decoded data (in either ASCII or Hex) of any bar code you scan. This is especially useful if you encounter a bar code that SocketScan will not decode. This SocketScan feature is only available for Windows CE.

1. Tap on the ISC icon in the task tray  to launch the applet (visible in the *Today* screen for Pocket PCs).
2. In the pop-up menu, select **Scan Demo**. This will close SocketScan and open Scan Demo as a separate application.

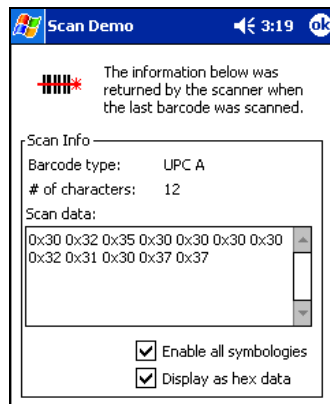


3. The Scan Demo screen will appear. If desired, use the check boxes at the bottom of the screen to modify the test.

Enable all symbologies: By default, this option is checked. Different symbologies can sometimes interpret the same bar code differently, so you may want to uncheck this option.


Display as hex data: Check this box to view scanned data in hexadecimal format. Otherwise, data will appear as ASCII.

4. Scan the bar code.
5. Scan Demo will report properties of the bar code you scan.



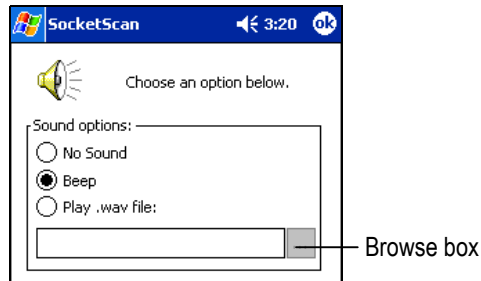
Optional: Configure Sounds

The SocketScan applet lets you choose any WAV sound file to be played to indicate a successful scan.

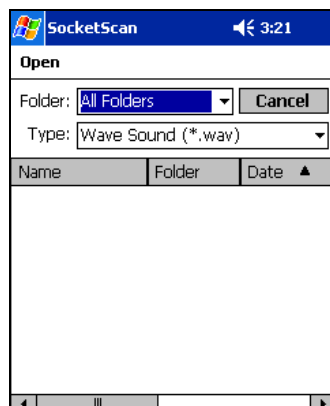
1. Tap on the ISC icon in the task tray  to launch the applet (visible in the *Today* screen for Pocket PCs).
2. In the pop-up menu, select **Sounds...**



3. In the screen that appears, select a sound for indicating successful scans. Tap **ok**.



To you want to play a .WAV file, after selecting **Play .wav file**, you can search through files by tapping the browse box. In the **Open** screen, tap on the file you want:



Note: For Pocket PCs and Pocket PC 2002s, you can only select a WAV file from the My Documents folder. If needed, copy the file you need to this folder.

Optional: Configure Special Symbologies

In addition to the eighteen symbologies supported by the Symbology Selector, you can also manually configure the ISC to accept or ignore specialized bar code symbologies and extensions.

See Appendix D, “Default Parameters,” to see parameter numbers and default settings of each symbology. Also please refer to the *Symbol 923 Programming Guide Chapter 5 for In-Hand Scan*, available online in Adobe Acrobat PDF format at: www.socketcom.com/support/support_bar.htm

Chapter 3 Casio BE-300 Setup

This chapter shows how to install, configure, and use the In-Hand Scan Card (ISC) on a Casio BE-300 Cassiopeia Pocket Manager.



Installation Steps Summary

STEP 1: Register the card.

STEP 2: Uninstall any bar code scanning software already on your device.

STEP 3: Install the software.

STEP 4: Insert the ISC.

STEP 5: Start SocketScan.

STEP 6: Assign a trigger button.

STEP 7: Start scanning data into a Windows program!

OPTIONAL: Configure prefix/suffixes

OPTIONAL: Configure sounds.

STEP 1: Register the Card

Register the card online at www.socketcom.com/product/prodreg.htm

You can also use the registration form included in the product package.

STEP 2: Uninstall Old Scanning Software

Delete any bar code scanning software you may already have installed on your Casio BE-300.

STEP 3: Install the Software

Follow these steps for software installation BEFORE inserting the ISC:

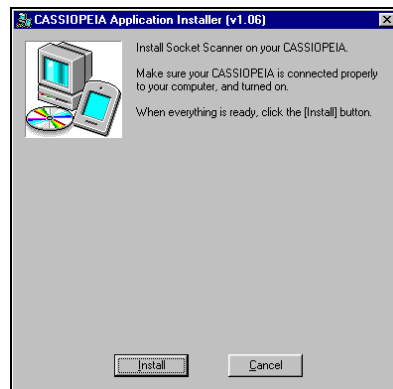
1. Download the software for the BE-300 onto a host PC. The software is available at: www.socketcom.com/support/support_bar.htm

DO NOT install the software from the installation CD onto a BE-300!

2. Use the USB/serial cable or cradle that came with the BE-300 to connect the BE-300 to a host computer. Perform a **PC Connect**. If you need help with **PC Connect**, refer to the BE-300 user documentation.
3. Run the **SETUP .EXE** that you downloaded.



4. The CASSIOPEIA Application Installer will begin. Follow the instructions on your host PC screen until installation is complete.




Note: You can choose to install the software either directly to the Main memory of your BE-300 or to a removable memory card.

5. When installation is finished, disconnect the BE-300 from the host PC.
6. Soft reset the BE-300. Push the reset button, located on the left side of the BE-300. Now you are ready to insert the card.

*Important! Soft reset the BE-300 after software installation!
Push the reset button, located on the left side of the unit!*

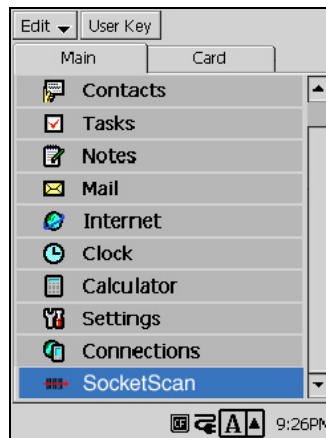
STEP 4: Insert the ISC

Plug the ISC into the device's CompactFlash I/O slot. The CF icon  should appear in the status bar at the bottom of the screen.



STEP 5: Start SocketScan

1. Go to **Main | SocketScan**.



2. Whenever SocketScan is running, either of two icons may appear in the status bar of the BE-300.




In-Hand Scan Card detected

No scanning card detected

3. Make sure the “In-Hand Scan Card detected” icon appears. If the “no card detected” icon appears instead, you may have improperly inserted card. Remove and reinsert the card, pushing it in all the way.

STEP 6: Assign a Trigger Button

Note: If SocketScan is not running yet, then pressing the assigned trigger button is a quick way to launch SocketScan. Pressing the trigger button will fire the laser only when SocketScan is open.

1. Tap on the ISC icon  at the bottom of the screen. In the pop-up menu, select **Enable Scan Buttons**.
2. Press the key or button you wish to use as the trigger. You can use any of the seven shortcut keys at the bottom of the screen or the Launcher button (with the rocket icon). The laser should fire.

*Shortcut
keys*

*Launcher
button*

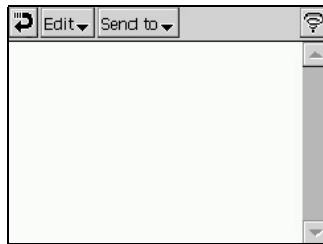


Note: You must assign a trigger button again after every time your device enters Suspend mode or powers off.

STEP 7: Scan Data into a Windows Program

For information about bar code scanning applications, please email info@socketcom.com

1. If not already open, start SocketScan.
2. Start the Windows application that you want to receive the data (e.g., Notes). Make sure a new document is open.



3. Press the assigned trigger button and scan the code.
An amber LED indicates the laser is on.

For example, try this Code 39 bar code:



Important! Do not look directly into the beam or point it at a person!


When data is read, a beep should sound, the laser should turn off, and the LED should turn green, indicating a good read. If the ISC fails to read data within a few seconds, the amber LED and laser beam will turn off, and you must try again.

4. After a successful scan, data should appear in your document. For example, if you scan the bar code above into a Notes document, the following will appear:



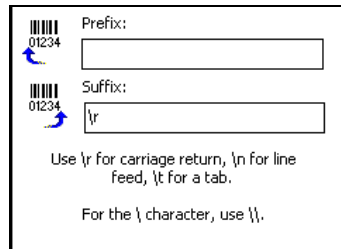
Optional: Configure Prefix/Suffixes

SocketScan lets you specify prefix and/or suffix characters to be added automatically to the data you scan. This helps to further eliminate manual data entry.

1. Tap on the ISC icon in the task tray .

Note: You can configure prefix/suffixes if the “no scanning card detected” icon appears.


2. In the pop-up menu, select **Prefix/Suffix...**
3. In the **Set Prefix/Suffix** screen, enter the characters you want to be appended to each scan (128 character maximum). Tap **ok**.

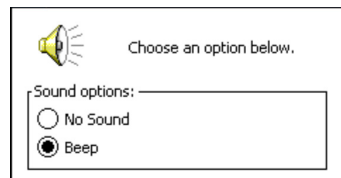


The screenshot shows a dialog box titled "Set Prefix/Suffix". It has two input fields: "Prefix:" and "Suffix:". The "Prefix:" field is empty, and the "Suffix:" field contains the text "\r". Below the input fields, there is instructional text: "Use \r for carriage return, \n for line feed, \t for a tab." and "For the \ character, use \\.".

Optional: Configure Sounds

The SocketScan applet lets you choose whether or not you want a beep to sound to indicate a successful scan.

1. Tap on the ISC icon in the task tray .
2. In the pop-up menu, select **Sounds...**
3. In the **Set Good-Read Sound** screen, select a sound for indicating successful scans. Tap **OK**.



The screenshot shows a dialog box titled "Set Good-Read Sound". It has a speaker icon and the text "Choose an option below." Below this, there is a section labeled "Sound options:" with two radio buttons: "No Sound" and "Beep". The "Beep" option is selected.

Chapter 4 Windows 9x/Me/2000

This chapter explains how to install the In-Hand Scan Card on a Windows 9x/Me/2000 notebook.

This chapter features screen images from Windows 98. Other Windows versions will have functionally equivalent screens except where otherwise noted. The ISC does NOT work with Windows XP or NT at this time.



Installation Steps Summary

- STEP 1: Register the card.
- STEP 2: Uninstall any bar code scanning software already on your device.
- STEP 3: Insert the installation CD.
- STEP 4: Insert the ISC.
- STEP 5: Configure Windows for new hardware.
- STEP 5: Start SocketScan.
- STEP 6: Assign a trigger button.
- STEP 7: Start scanning data into a Windows program!

OPTIONAL: Configure prefix/suffixes

OPTIONAL: Configure sounds.

OPTIONAL: Configure SocketScan for specific symbologies or extensions.

STEP 1: Register the Card

Register the card online at www.socketcom.com/product/prodreg.htm

You can also use the registration form included in the product package.

STEP 2: Uninstall Old Scanning Software

Delete any bar code scanning software you may already have installed on your mobile computer.

STEP 3: Insert the Installation CD

Insert the *SocketScan Installation CD* into your CD-ROM drive.



STEP 4: Insert the ISC into Your Computer

Insert the ISC into a CompactFlash-to-PC Card adapter, then plug the combined unit into your computer's PC Card slot.



STEP 5: Configure for New Hardware

1. Make sure the installation CD is still inside your computer.
2. Windows 2000: After you insert the ISC, a screen may appear reporting **Digital Signature Not Found**. Click **Yes**.
3. The first time you insert the ISC, a new hardware or device driver wizard will appear.



4. Follow the wizard to install the ISC drivers, making the appropriate selection below as prompted:
 - a. Windows 95 — Select **Other Locations...** and specify your CD drive.
 - b. Windows 98 — Select **Search for the best driver for your device**.
In the next screen, select **CD-ROM drive**.



- c. Windows 2000 — Select **Search for a suitable driver for my device**.
In the next screen, select **CD-ROM drive**.
- d. Windows Me — Select **Specify the location of the driver**.
In the next screen, select **Search for the best driver for your device**, and check **Removable Media**.


Important! For Windows Me, DO NOT select Automatic search for a new driver!

STEP 6: Start SocketScan

Go to **Start | Programs | SocketScan**.

Whenever SocketScan is running and the ISC is inserted, the ISC icon should appear in the your device's status bar.



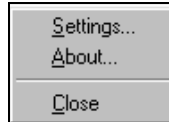
The “no card detected” icon  may denote an improperly inserted card.

STEP 7: Assign a Trigger Button

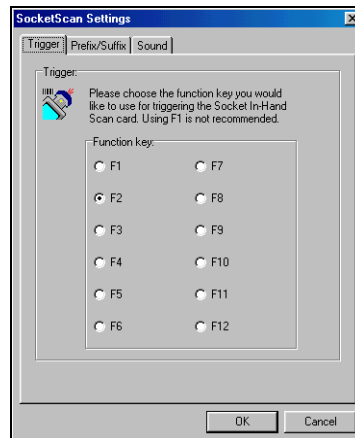
Note: If SocketScan is not running yet, then pressing the assigned trigger button is a quick way to launch SocketScan. Pressing the trigger button will fire the laser only when SocketScan is open.

Follow these steps and refer to your Windows documentation to assign a trigger button:

1. Right-click the ISC icon  on your Windows task tray.
2. In the pop-up menu that appears, click **Settings...**



3. In the next screen, select a function key for the trigger button. Click **OK**.

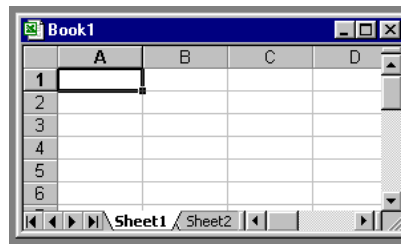


*Important!
Be careful not
to pick a key
used by
another
program!*

STEP 8: Scan Data into a Windows Program

Follow these steps to use the ISC to scan data into a Windows program. For information about bar code scanning applications (available separately), email info@socketcom.com

1. If not already open, start SocketScan. You can press the trigger button to quickly launch the program.
2. Start the Windows application you want to receive the data, such as Notepad, Word or Excel. Make sure a new document or spreadsheet is open that you can scan data into.

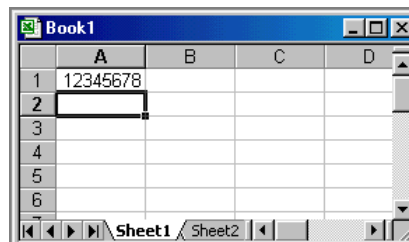


3. Press the assigned trigger button and scan the code. An amber LED indicates the laser is on. For example, try this Code 39 bar code:




Important! Do not look directly into the beam or point it at a person!

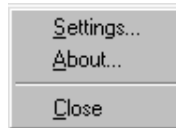
4. When data is read, a beep should sound, the laser should turn off, and the LED should turn green, indicating a good read. If the ISC fails to read data within a few seconds, the amber LED and laser beam will turn off, and you must try again.
5. After a successful scan, data should appear in your document. If you scan the code above into an Excel spreadsheet, data should appear in the first cell:



Optional: Configure Prefix/Suffixes

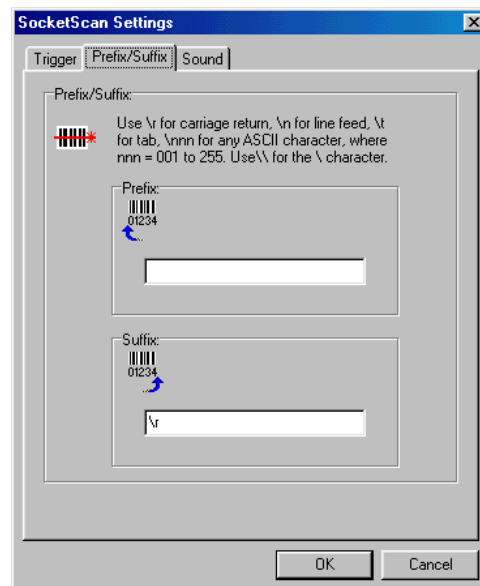
The SocketScan applet lets you specify prefix and suffix characters or functions to be added automatically to the data that you scan. This makes it easy to use the ISC with existing Windows applications.

1. Right-click on the SocketScan icon  in the task bar at the bottom of your screen.
2. In the pop-up menu, select **Settings...**




3. Start the applet. In SocketScan Settings, click on the **Prefix/Suffix** tab.
4. In the **Prefix** and **Suffix** fields, enter the characters you want to be appended to each scan (128 character maximum).

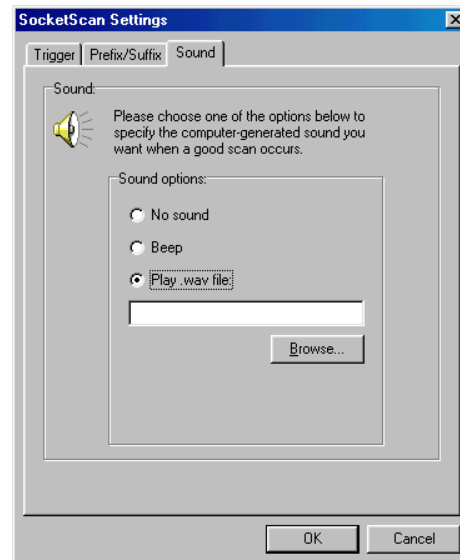
When done, click **OK**.



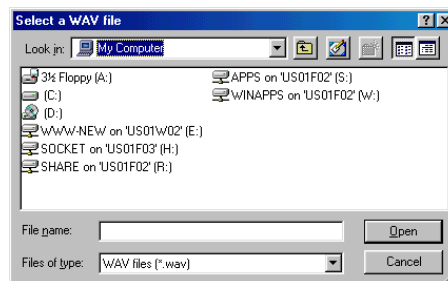
Optional: Configure Sounds

The SocketScan applet lets you choose any WAV sound file to be played to indicate a successful scan.

1. Tap on the ISC icon  in the task bar. In the pop-up menu, select **Settings**. Click on the **Sound** tab.
2. Select a sound for indicating successful scans, then click **OK**.



To you want to play a .WAV file, after selecting **Play .wav file**, you can search through files by tapping the **Browse** button. In the **Select a WAV file** screen, select the file you want, then click on the **Open** button:



Optional: Configure Symbolologies

You can manually configure the ISC to accept or ignore certain bar code symbolologies and extensions. Check Appendix B, “Default Parameters,” to see if the ISC is already configured for the symbology you need.

Default symbolologies include Code 39, Code 128, UPC/EAN, MSI Plessey, Code 93 and Codabar.

To reconfigure your ISC for different symbolologies, please refer to *Symbol 923 Programming Guide Chapter 5 for In-Hand Scan*, available in Adobe Acrobat PDF format at: www.socketcom.com/support/support_bar.htm

Appendix A ISC Specifications

Physical Characteristics:

CompactFlash CF Card Size:

1.77 x 1.68 x 0.13 in (45 x 42.8 x 3.3 mm)

Laser Scanner Size:

1.97 x 1.45 x 0.83 in (36.8 x 50 x 21 mm)

Total Weight: approx. 1.8 oz (51.5 g)

ISC Power Consumption with Class 1 or Class 2 Laser (3.3V supply):

Idle: 4 mA (13 mW)

Scanning: 75 mA (248 mW) (Also operates on 5V supply)

ISC-X Power Consumption (3.3V supply):

Idle: 13 mA (43 mW)

Scanning: 288 mA (950 mW) (Also operates on 5V supply)

Operating System Support:

Windows CE v2.11 for Handheld PC Pro and pen tablet

Windows CE v3.0 for Pocket PC, Pocket PC 2002, HPC 2000

Windows CE for Casio BE-300

Windows 95, 98, Me, and 2000

Compatibility: Windows or MS-DOS COM port

Bar Code Symbolologies Automatically Detected:

Code 39, UPC/EAN, Code 128, Code 93, Codabar, and MSI Plessey.

Other symbolologies can be easily enabled

Laser Scanner Performance:

Scan Repetition Rate: 39 (± 3) scans/sec (bidirectional)

Decode Distances:

2.2 to 60.0 in (dependent on symbol density, symbology, W-N Ratio, label media, and scan angle)

Scan Angle: 53° typical

Interface Standards:

CompactFlash CF, Type I Extended

PC Card (with CompactFlash-to-PC Card adapter)

Certification: FCC: Part 15, Class B, CE: EN55024:1998, C-TICK s.182

Software:

Universal Installer, configuration utility and virtual keyboard wedge for Windows

Appendix B Bar Code Label Specifications

All bar code symbols/labels should satisfy the appropriate AIM Uniform Symbology Specification.

Background Substrate:

The bar code symbol should be printed on material (media) that is reflective and has a matte (not glossy) finish. A background diffuse reflectance of at least 70% to 80% is desirable for optimum contrast. Retro-reflective media should be used to obtain decode distances greater than 36 inches.

Ink Color and Type:

The inked bars should not exceed 25% reflectance at the wavelength that is being used for reading, whether printed with black ink or colored ink. The reflectance value should not vary more than 5% within the same character.

Voids and Specks:

The code should be printed clearly, free of voids, specks, blemishes and lines that could “fool” the scanner. Specks or blemishes in the white spaces, or false or missing bar sections could be interpreted by the reading equipment as part of the code. Generally, the width of such flaws is more serious than the height. Code symbols/ labels should be rejected if these defects are present.

Definition:

The bars in the bar code symbol should be well defined. Their edges should not be rough or fuzzy, so that the bars and spaces have the proper widths intended for the bar code symbology used.

Contrast:

Background reflectance (that of the substrate on which the codes are printed) should always provide a good contrast relative to the ink reflectance (that of the code bars). The difference between the two should be at least 37.5% at the wavelength used for reading.

Tolerance:

The ratio of the widths of bars and spaces in a bar code symbol must conform to the appropriate AIM bar code specifications and can cause problems if not correct throughout the bar code. Problems can occur when bar edges are smeared or rough, or when they exhibit voids.

Appendix C Class 1 vs. Class 2 Laser Scanners

This is a paper on bar code laser scanners that Jack Brandon, Product Marketing Manager of Scanner Products for Socket Communications, published in September 2001. You can download a copy of this paper at: www.socketcom.com/about/techbrief.htm

Introduction

Socket now offers the popular In-Hand Scan Card (ISC) with either a Class 1 or Class 2 laser. This document describes the differences between the two devices and the appropriate applications for each.

The primary difference is the power output of the laser. The Class 1 laser has a nominal power output of 0.5 milliwatts, while the output of the Class 2 laser is 1.2 milliwatts. This difference impacts the scanning performance of the device in three ways:

1. Distance — For scanning distances of up to 10 inches, there is very little difference in the ability of either the Class 1 or the Class 2 laser to scan a given bar code. Beyond 10 inches, the Class 2 laser will scan a standard, high quality bar code about 20% - 25% farther than the Class 1 laser.

Scanning a standard bar code of any size at a distance greater than 25 inches becomes difficult with the Class 1 laser, while the Class 2 laser will easily scan very large bar codes at 60 inches and beyond. There are a many variables involved in determining the distance at which a bar code can be scanned, including:

- a. The size of the bar code — The width of the narrowest bar in thousandths of an inch (or ‘mils’) is referred to as the “X dimension” or “size” of a bar code. Standard retail UPC or EAN bar codes are 10 mils (0.010 inches). Larger bar codes, such as warehouse location bar codes, can be 200 mils or larger. The larger a bar code, the greater the distance from which it can be scanned.

Please refer to the *Decode Zone* charts in Appendix A for more detailed information on the relationship between the size of a bar code and the distance at which it can be scanned.

- b. The label media — The media is the material a bar code is printed on. This is usually some type of paper but can also be a plastic or even metallic material. Because the reading mechanism in a bar code scanner is based on contrast, the whiter and more reflecting a media is, the farther away it can be scanned. Retro-reflective media (like a stop sign) is used for scanning very large bar code labels at distances of 20 feet and more.
 - c. The bar code symbology — There are many different bar code symbologies (or ‘languages’), such as UPC, EAN, Code 39, Code 128, Code 93 and more. Some symbologies are easier to decode than others and can, therefore, be scanned at greater distances.
2. Packaging or covering materials — The Class 2 laser can more effectively scan through difficult packaging materials such as Mylar (used for electronic components) or thick plastic or glass such as automobile windshields.
 3. Ambient light — The Class 2 laser can more effectively scan in high ambient light conditions such as high intensity lighting or even daylight (indirect sunlight). Scanning bar codes in direct sunlight is extremely difficult because sunlight contains enough energy in the red spectrum used by the laser to ‘blind’ the scanner’s decode system.

The second difference between the Class 1 and Class 2 lasers in the Socket In-Hand Scan Card is the wavelength frequency of the laser beam. The Class 1 laser has a 670 nanometer (nm) beam common in most laser bar code scanners, while the Class 2 features a 650nm beam. There is no difference in the scanning capability of the two frequencies, but the 650nm beam is more visible to the human eye, making it appear brighter than the Class 1 laser.

The user must see the oscillating laser beam in order to aim it effectively at the bar code to be scanned. The Class 2, 650nm laser is easier to see and aim than the Class 1 laser, especially when scanning at greater distances, through difficult materials or in high ambient light.

A third difference between the Class 1 and Class 2 lasers is the current demand during scanning. At 3.3 Volt power (standard for CompactFlash card slots) the Class 1 laser draws about 67 milliamps (mA) and the Class 2 laser draws about 75mA. Both lasers draw about 3 - 4mA when idle. Therefore, for a given level of scanning activity, using the Class 1 laser should result in a slightly longer battery life.

A final consideration in the selection of either a Class 1 or Class 2 laser is safety. Staring directly into any laser beam for an extended period of time will cause damage to the eyes of humans and animals. The normal use of a bar code scanner is inherently very safe because (a) the laser is typically

aimed away from the person using the scanner, and (b) the beam oscillates 39 times per second over a 53 degree arc, making it impossible to stare into the beam. Additionally, using the lower powered Class 1 laser makes it even less likely that eye damage will occur. There are certain organizations in Europe, in fact, that require a Class 1 laser in bar code scanners to meet more stringent safety standards. The Socket In-Hand Scan Card with Class 1 laser meets these European safety standards. Please refer to Appendix B for more detailed safety information.

Conclusion

The Class 1 laser is suitable for most applications with expected scanning distances of less than 20 inches and normal ambient light conditions. The Class 1 laser may be required by certain European organizations to meet more stringent safety standards.

When an application is likely to require more demanding scanning capabilities, the Class 2 laser provides the assurance of maximum scanning performance.

Note: People who use portable computers to gather and manage data at the point of activity are typically very quick to learn how to use a laser bar code scanner and realize the resulting gains in productivity. They are easily discouraged, however, if time and effort are required to obtain a successful scan – thus the decline in popularity of the much less expensive bar code contact wands seen at most retail checkout counters during the 1980's. The higher cost of the Class 2 version of the In-Hand Scan Card is easily justified if the application requires higher scanning performance.

Appendix D Default Parameters

Check the table below to identify default parameters for the ISC. To program different settings, please use the Symbology Selector feature in SocketScan or the parameter number and refer to the *Symbol 923 Programming Guide Chapter 5 for In-Hand Scan* in Adobe Acrobat PDF format at: www.socketcom.com/support/support_bar.htm

Parameter	Parameter #	Default
Set Default Parameter		All Defaults
Beeper Tone	0x91	Medium Frequency
Laser On Time	0x88	3.0 sec
Aim Duration	0xED	0.0 sec
Power Mode	0x80	Low Power
Trigger Mode	0x8A	Level
Time-out Between Same Symbol	0x89	1.0 sec
Beep After Good Decode	0x38	Enable
Transmit "No Read" Message	0x5E	Disable
Parameter Scanning	0xEC	Enable
Linear Code Type Security Levels	0x4E	1
Bi-directional Redundancy	0x43	Disable

UPC/EAN	Parameter #	Default
UPC-A	0x01	Enable
UPC-E	0x02	Enable
UPC-E1	0x0C	Disable
EAN-8	0x04	Enable
EAN-13	0x03	Enable
Bookland EAN	0x53	Disable
Decode UPC/EAN Supplementals	0x10	Ignore
Decode UPC/EAN Supplemental Redundancy	0x50	7
Transmit UPC-A Check Digit	0x28	Enable
Transmit UPC-E Check Digit	0x29	Enable
Transmit UPC-E1 Check Digit	0x2A	Enable
UPC-A Preamble	0x22	System Character
UPC-E Preamble	0x23	System Character
UPC-E1 Preamble	0x24	System Character

UPC/EAN	Parameter #	Default
Convert UPC-E to A	0x25	Disable
Convert UPC-E1 to A	0x26	Disable
EAN-8 Zero Extend	0x27	Disable
Convert EAN-8 to EAN-13 Type	0xE0	Type is EAN-13
UPC/EAN Security Level	0x4D	0
UPC/EAN Coupon Code	0x55	Disable

Code 128	Parameter #	Default
USS-128	0x08	Enable
UCC/EAN-128	0x0E	Enable
ISBT 128	0x54	Enable

Code 39	Parameter #	Default
Code 39	0x00	Enable
Trioptic Code 39	0x0D	Disable
Convert Code 39 to Code 32	0x56	Disable
Code 32 Prefix	0xE7	Disable
Set Length(s) for Code 39	0x12	2-55
	0x13	2-55
Code 39 Check Digit Verification	0x30	Disable
Transmit Code 39 Check Digit	0x2B	Disable
Code 39 Full ASCII Conversion	0x11	Disable

Code 93	Parameter #	Default
Code 93	0x09	Disable
Set Length(s) for Code 93	0x1A	4-55
	0x1B	4-55

Interleaved 2 of 5	Parameter #	Default
Interleaved 2 of 5	0x06	Enable
Set Length(s) for I 2 of 5	0x16	14
	0x17	14
I 2 of 5 Check Digit Verification	0x31	Disable
Transmit I 2 of 5 Check Digit	0x2C	Disable
Convert I 2 of 5 to EAN 13	0x52	Disable

Discrete 2 of 5	Parameter #	Default
Discrete 2 of 5	0x05	Disable
Set Length(s) for D 2 of 5	0x14	12
	0x15	12

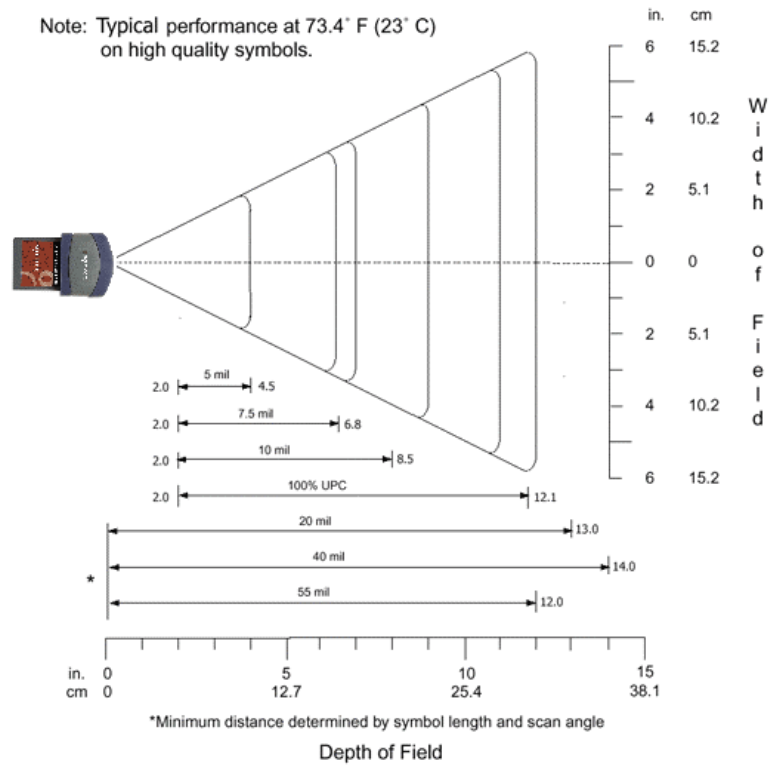
Codabar	Parameter #	Default
Codabar	0x07	Disable
Set Lengths for Codabar	0x18	5-55
	0x19	5-55
CLSI Editing	0x36	Disable
NOTIS Editing	0x37	Disable

MSI Plessey	Parameter #	Default
MSI Plessey	0x0B	Disable
Set Length(s) for MSI Plessey	0x1E	6-55
	0x1F	6-55
MSI Plessey Check Digits	0x32	One
Transmit MSI Plessey Check Digit	0x2E	Disable
MSI Plessey Check Digit Algorithm	0x33	Mod 10/Mod 10

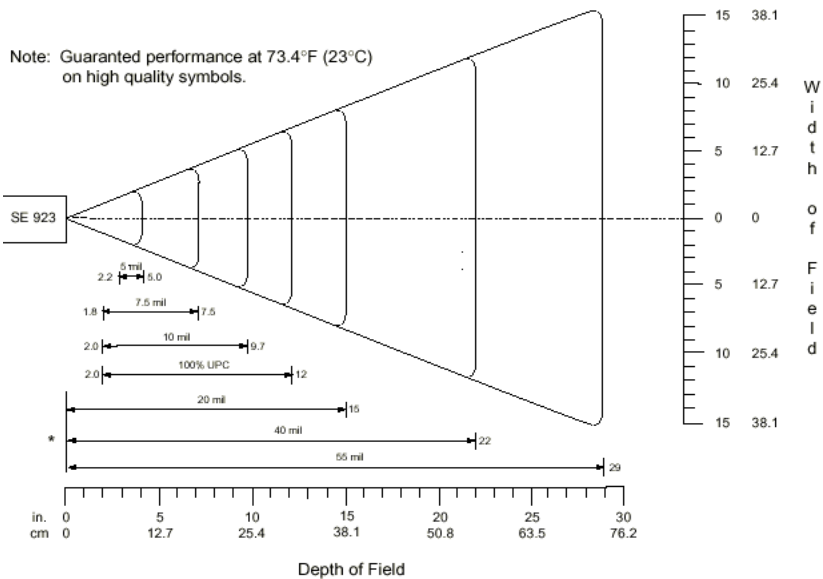
Appendix E Decode Zones

The decode zones for the Class 1 and Class 2 lasers in the In-Hand Scan Card are shown below. The minimum element width (“X Dimension” or bar code “size”) is the width in thousandths of an inch (mils) of the narrowest element (bar or space) in the symbol. The figures shown are the typical scanning distances for selected bar code sizes. The maximum usable length of a bar code symbol (Width of Field) at any given range is also shown below.

Class 1 Laser Decode Zone



Class 2 Laser Decode Zone



Source: Symbol Technologies, Inc.

Appendix F PDF417 Bar Codes and the ISC-Xtreme

About PDF417

Imagine a database that's totally portable - freed from the computer to go anywhere and yet be accessed immediately at any time. Or a paper-based communication medium that makes documents, labels and cards "live" with machine-readable information, including text, graphics, biometrics or other data. And imagine capturing this information quickly, easily and inexpensively. There's a technology that offers all this – it's PDF417.

PDF stands for "Portable Data File". A single PDF417 symbol can represent up to 1500 bytes of machine-readable data in a label the size of a small business card. And, unlike traditional one-dimensional bar codes that depend on real-time links to a larger database, a PDF417 symbol is the database.

PDF417 answers the need to capture, store and transfer large amounts of data inexpensively. It can exchange complete data files (such as text, numerics or binary) and encode graphics, fingerprints, shipping manifests, electronic data interchange (EDI) messages, equipment calibration instructions and much more. It provides a powerful communications capability - without the need to access an external database. And, for virtually no incremental cost, you can add a PDF symbol to the documents and labels you are already printing.

Printing PDF417 Bar Codes

PDF417 printing solutions are compatible with all the same printers used to print 1-D bar codes, including laser, thermal direct, thermal transfer, ink jet and others. You can print on a wide variety of materials-paper, cards, labels, plastics, metals and others. You can even fax PDF417 symbols. Most bar code printing software packages support the printing of PDF417 bar codes.

Scanning PDF417 Bar Codes with the ISC-Xtreme

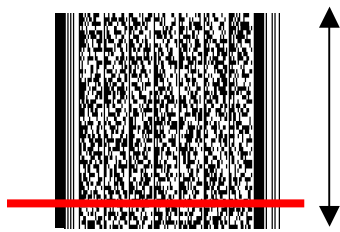
In order to decode a PDF417 bar code with the Socket In-Hand Scan Card-Xtreme, the laser must be maneuvered to cover the entire symbol. When triggered, the ISC-X laser beam sweeps horizontally back and forth 200 times per second, forming a solid bright red line. The user must slowly and smoothly sweep the laser beam line vertically across the symbol. This sweeping motion can be either upward or downward, but the beam line must be parallel with the bottom (or top) of the symbol – it cannot be

skewed or angled. The ISC-X should be held at a distance such that the horizontal beam line extends past the sides of the symbol. For best results, the scanner should also be held at an angle of at least 15 degrees from perpendicular to the surface of the bar code label, as the reflected light from the scanner can blind the reading mechanism.

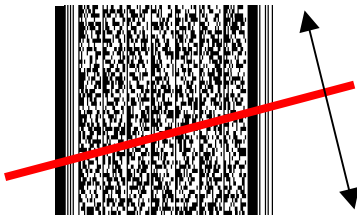
Please see the following examples:

Example 1: Vertical sweep

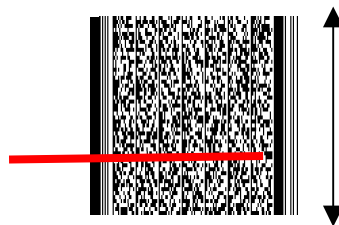
CORRECT



INCORRECT

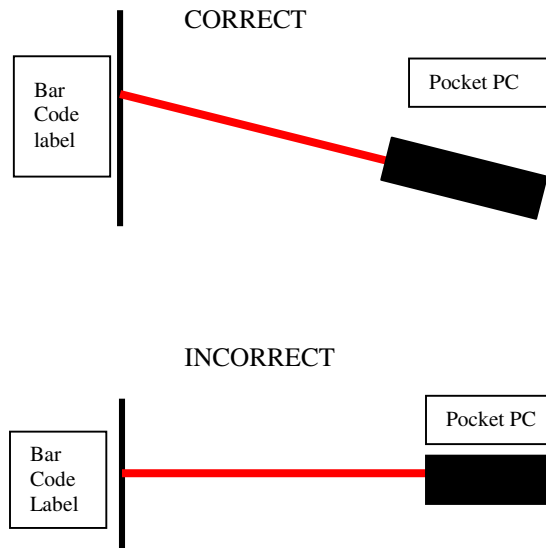


INCORRECT



The sweeping motion can be either upward or downward, but the beam line must be parallel with the bottom (or top) of the symbol – it cannot be skewed or angled. The ISC-X should be held at a distance such that the horizontal beam line extends past the sides of the symbol.

Example 2: Scanning Angle



For best results, the scanner should be held at an angle of at least 15 degrees from perpendicular to the surface of the bar code label.


Managing Data from a PDF417 Bar Code

PDF417 bar codes are almost always associated with a specific software application and the standard SocketScan keyboard emulation is typically of little use in a PDF417 application. The PDF417 symbol is created with data that is formatted to match the format of the application. Application developers wishing to use PDF417 technology and the Socket In-Hand Scan Card-Xtreme should use the SocketScan Software Developer's Kit (SDK) to bypass keyboard emulation and manage the decoded serial data coming from the CompactFlash communications port.

For more information about the SDK and to download the User Manual, visit: www.socketcom.com/product/bar_scan_sdk.htm. To obtain the SDK, complete and submit the Developer's Survey found on this webpage and you will be contacted.

Appendix G Troubleshooting

SYMPTOM:

I get the “No Card Detected”  icon in the system tray and can't trigger the laser or scan any bar codes.

POSSIBLE REASON	SOLUTION
Your mobile computer does not recognize the ISC.	Make sure the ISC is inserted properly. If necessary, remove and reinsert. If using battery power, be sure to tap Yes if asked if you want to use battery power.

SYMPTOM:

While scanning, the laser fires, but no data appears on my screen, and the light eventually disappears.

POSSIBLE REASON	SOLUTION
The laser beam is too close or too far from the bar code.	Practice so you get accustomed the most effective distance and scanning angle.
The bar code is incorrectly formatted or poorly printed.	Try scanning a bar code that is correctly formatted or printed well, such as on a retail package.
The bar code symbology may be disabled in the ISC configuration.	Use Scan Demo to determine the symbology. If needed, reconfigure the ISC.

SYMPTOM:

When I press the trigger button, nothing happens.

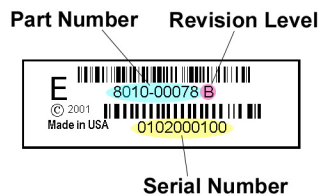
POSSIBLE REASON	SOLUTION
You programmed the trigger button incorrectly.	Test the button by assigning a different program to it and make sure it works properly.

Appendix H Technical Support

If you have a technical problem while installing or using the In-Hand Scan Card, please refer to Appendix G, “Troubleshooting.” You are also welcome to visit Socket’s online users’ forum at www.socketforum.com

Otherwise feel free to contact Socket’s technical support department, prepared with the following information:

- The part number (including revision number) and serial number of your In-Hand Scan Card (please see diagram below)
- The manufacturer, model number, and Windows version of your mobile computer
- If applicable, the Windows version of your host computer
- How you know your In-Hand Scan Card is not working properly and what you did to try to correct the problem



You can contact Socket the following ways:

- Visit www.socketcom.com
- Email techsupport@socketcom.com
- Phone 510-744-2720
- Fax 510-744-2727

Please refrain from disassembling the CompactFlash Card. Disassembly of this device will void the product warranty.

Limited Warranty

Socket Communications Incorporated (Socket) warrants this product against defects in material and workmanship, under normal use and service, for the following periods from the date of purchase:

Plug-in card: 2 years

Incompatibility is not a defect covered by Socket's warranty. During the warranty period, Socket will, at its option, repair or replace the defective product at no charge when furnished with proof of retail purchase, provided that you deliver the product to Socket or to an authorized Socket Service Center.

The returned product must be accompanied by a return material authorization (RMA) number issued by Socket or by Socket's Authorized Service Center. If you ship the product, you must use the original container or equivalent and you must pay the shipping charges to Socket. Socket will pay shipping charges back to any location in the contiguous United States. This warranty applies only to the original retail purchaser and is not transferable.

Socket may, at its option, replace or repair the product with new or reconditioned parts and the returned product becomes Socket's property. Socket warrants the repaired or replaced products to be free from defects in material or workmanship for ninety (90) days after the return shipping date, or for the duration of the original warranty period, whichever is greater.

This warranty does not cover the replacement of products damaged by abuse, accident, misuse or misapplication, nor as a result of service or modification other than by Socket.

SOCKET IS NOT RESPONSIBLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM BREACH OF ANY EXPRESS OR IMPLIED WARRANTY, INCLUDING DAMAGE TO PROPERTY AND, TO THE EXTENT PERMITTED BY LAW, DAMAGES FOR PERSONAL INJURY. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES INCLUDING IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Some states do not allow limitation of implied warranties, or the exclusion or limitation of incidental or consequential damages, so that the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

This product may contain fully tested, recycled parts, warranted as if new. For warranty information, phone (510) 744-2700.

Limited Software Warranty

LIMITED WARRANTY. SOCKET warrants that the original disk or CD ROM is free from defects for 90 days from the date of delivery of the SOFTWARE.

CUSTOMER REMEDIES. SOCKET'S entire liability and your exclusive remedy shall be, at SOCKET'S option, either (a) return of the price paid or (b) replacement of the SOFTWARE which does not meet SOCKET'S Limited Warranty and which is returned to SOCKET with a copy of your receipt. Any replacement SOFTWARE will be warranted for the remainder of the original warranty period or 30 days, whichever is longer. THESE REMEDIES ARE NOT AVAILABLE OUTSIDE OF THE UNITED STATES OF AMERICA.

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Socket Communications

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Technical Support: (510) 744-2720

Important! Before calling for technical support, please prepare yourself with the information listed in Appendix H, "Technical Support."

Other than the above, Socket Communications can assume no responsibility for anything resulting from the application of information contained in this manual.

Socket Communications requests that you refrain from any applications of the In-Hand Scan Card that are not described in this manual. Socket Communications also requests that you refrain from disassembling the CompactFlash Card. Disassembly of this device will void the product warranty.

You can track new product releases, software updates and technical bulletins by visiting Socket's web page at www.socketcom.com

Regulatory Compliance

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. This equipment is also CE EN55024:1998 and C-TICK compliant. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area may cause harmful interference in which case the user will be required to correct the interference at his or her own expense.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user may try to correct the interference by doing any of the following:

- Reorient or relocate the receiving antenna of the radio or television.
- Increase the distance separating the equipment and the receiver.
- Connect the equipment to an outlet on a different branch circuit than that of the receiver.
- Consult the dealer or an experienced radio/TV technician for help.

The user may find the following booklet helpful:

How to Identify and Resolve Radio-TV Interference Problems

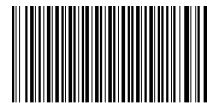
This booklet is available from the U.S. Government Printing Office, Washington, D.C. 20402

LASER DEVICES: Symbol products using lasers comply with US 21CFR1040.10, Subchapter J and IEC825/EN 60 825 (or IEC825-1/EN 60 825-1, depending on date of manufacture). The laser classification is marked on one of the labels on the product.

Class 1 Laser devices are not considered to be hazardous when used for their intended purpose. The following statement is required to comply with US and international regulations.

Caution: Use of controls, adjustments or performance of procedures other than those specified herein may result in hazardous laser light exposure.

Class 2 laser scanners use a low power, visible light diode. As with any very bright light source, such as the sun, the user should avoid staring directly into the light beam. Momentary exposure to a Class 2 laser is not known to be harmful.



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